

**Notice of Allowability**

Application No.

09/834,125

Examiner

Joon H. Hwang

Applicant(s)

DUDDLESON ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to a telephone interview with James G. Gatto (Reg. No. 32,694) on 11/10/2004.
2. ☒ The allowed claim(s) is/are 6-9,11,12,15-17,20-22,24-26,28,32 and 33 (renumbered as 1-18).
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

  
JEAN M. CORBIER  
PRIMARY EXAMINER

**DETAILED ACTION**

1. The pending claims are 1-9, 11-13, 15-22, and 24-33.

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with James G. Gatto (Reg. No. 32,694) on 11/10/2004.

The application has been amended as follows:

Claims 1-5 are canceled.

Rewrite claim 6 as follows:

"6. A method for providing an analytical business report that is based on data including data from tables, each table including a plurality of rows and a plurality of columns, each of the plurality of columns corresponding to a data field, the method comprising:

inverting said data such that said data fields are stored in separate files that include a row number field and data values corresponding to a single data field, wherein said files include at least a first file with a partition field and a second file with an analytical field;

compressing at least one of said files, including files containing repeating data stored in successive rows;

traversing said at least one of said compressed files while said compressed file is stored in memory to directly retrieve data stored in said compressed file without decompressing said compressed file;

using said retrieved data to generate said analytical business report;

processing said partition field by creating sub-rowsets of said partition field and by assigning said sub-rowsets of said partition field to a first set of servers, wherein said first set of servers identify unique partition values contained in said sub-rowsets;

merging said unique partition values identified by said first set of servers;

transmitting said merged partition values to a second set of servers; and

processing said analytical field for said merged partition values by creating sub-rowsets of said analytical field and by assigning said sub-rowsets of said analytical field to said second set of servers.”

Rewrite claim 8 as follows:

“8. The method of claim 7 further comprising the step of:

annotating said complete result set.”

Rewrite claim 11 as follows:

“11. The method of claim 6 further comprising the step of:

receiving business user requests for said business reports via a browser of a computer that is connected to a distributed communication system.”

Claim 13 is canceled.

Rewrite claim 15 as follows:

“15. The system of claim 20 wherein said first file is compressed using run length encoding.”

Rewrite claim 16 as follows:

“16. The system of claim 20 wherein said application controller divides at least one of said first and second files into sub-rowsets and assigns said sub-rowsets to said servers for processing.”

Rewrite claim 17 as follows:

“17. The system of claim 20 wherein said application controller distributes processing of said first file by creating sub-rowsets of said first file and by assigning said sub-rowsets of said first file to a first set of servers.”

Claims 18-19 are canceled.

Rewrite claim 20 as follows:

"20. A system for providing an analytical business report that is based on data including data from tables, each table including a plurality of rows and a plurality of columns, each of the plurality of columns corresponding to a data field, comprising:

a data storage device that stores denormalized and inverted data in separate files that contain a row number field and data values corresponding to a single data field, wherein said files include at least a first file with a partition field and a second file with an analytical field;

a client computer that requests a business report that requires a calculation involving said first file and said second file;

an application controller that is responsive to said request from said client computer;

a plurality of servers connected to said data storage device and said application controller,

wherein said application controller distributes portions of said calculation to said servers, merges partial result sets that are generated by said servers and transmits said merged result sets to said client computer, wherein said first file is compressed, wherein said first file contains repeating data stored in successive rows, and wherein said servers traverse said first compressed file while said first compressed file is stored in memory to directly retrieve data stored in said first compressed file without decompressing said first compressed file, wherein said retrieved data is used to generate said analytical business report;

wherein said application controller distributes processing of said first file by creating sub-rowsets of said first file and by assigning said sub-rowsets of said first file to a first set of servers, wherein said first set of servers identify unique partition values in said sub-rowsets of said first file and merges said unique partition values identified by

said first set of servers and transmits said merged partition values to a second set of servers; and

wherein said second set of servers process sub-rowsets of said second file using said merged partition values to create partial result sets and wherein said second set of servers transmit said partial result sets to said application controller.”

Rewrite claim 24 as follows:

“24. The system of claim 20 wherein said application controller receives said requests from said client computer via a browser run by said client computer.”

Rewrite claim 25 as follows:

“25. The system of claim 20 further comprising a web application server connected to a plurality of application controllers, wherein said web application server distributes said requests to said plurality of application controllers using dynamic binding.”

Rewrite claim 26 as follows:

“26. The system of claim 20 wherein said application controller includes a distribution analysis module that determines a number of servers required to process said request within interactive time.”

Claim 27 is canceled.

Rewrite claim 28 as follows:

“28. The method of claim 32 further comprising the step of:

determining a number of servers in said first set that are required to process said request in interactive time.”

Claims 29-31 are canceled.

Rewrite claim 32 as follows:

“32. A method for providing an analytical business report that is based on data that includes tables each with a plurality of data fields, comprising the steps of:

inverting said data such that said data fields of said tables in said data are stored in files that contain a row number and a data field;

compressing at least one of said files;

distributing processing of said business report using a first set of servers; and

traversing said compressed file while said compressed file is stored in memory to directly retrieve data stored in said compressed file without decompressing said compressed file, wherein said retrieved data is used to generate said analytical business report;

wherein a first file includes a partition field and a second file includes an analytical field;

further comprising the steps of dividing rows of said first file into sub-rowsets;

assigning said sub-rowsets to said first set of servers to determine unique partition values;

merging said unique partition values generated by said first set of servers;

distributing a control structure related to said unique partition values to a second set said servers;

dividing rows of said second file into sub-rowsets;

assigning said sub-rowsets to said second set of servers; and

calculating partial result sets using said control structure, said analytical values and said unique partition values in said second set of servers."

4. The pending claims are now 6-9, 11-12, 15-17, 20-22, 24-26, 28, and 32-33.

***Allowable Subject Matter***

5. Claims 6-9, 11-12, 15-17, 20-22, 24-26, 28, and 32-33 are allowed.

***Reason For Indicating Allowable Subject Matter***

Claims 6, 20, and 32 identify the distinct feature, traversing a compressed file while the compressed file is stored in memory to directly retrieve data stored in the compressed file without decompressing the compressed file, processing a partition field by creating sub-rowsets of the partition field and by assigning the sub-rowsets of the partition field to a first set of servers, wherein the first set of servers identify unique partition values contained in the sub-rowsets, merging the unique partition values identified by the first set of servers, transmitting the merged partition values to a second



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set of servers, and the second set of servers process the an analytical field using the merged partition values. The closest prior art, White et al. (U.S. Patent No. 5,918,225) disclosing a row-based and column-based data storing system, wherein the system compresses/decompresses data, fails to suggest the claimed limitation as mentioned above in combination with other claimed elements. The invention is allowable over the prior art for being directed to a combination of claimed elements as indicated above.

Claims 7-9, 11-12, 15-17, 21-22, 24-26, 28, and 33, further depending from one of the claims 6, 20, and 32, are allowed with the same reason above.

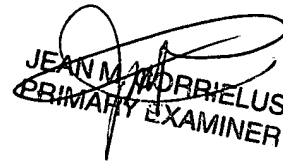
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 571-272-4036. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BREENE can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joon Hwang  
11/10/04

  
JEAN M. MORRIUS  
PRIMARY EXAMINER